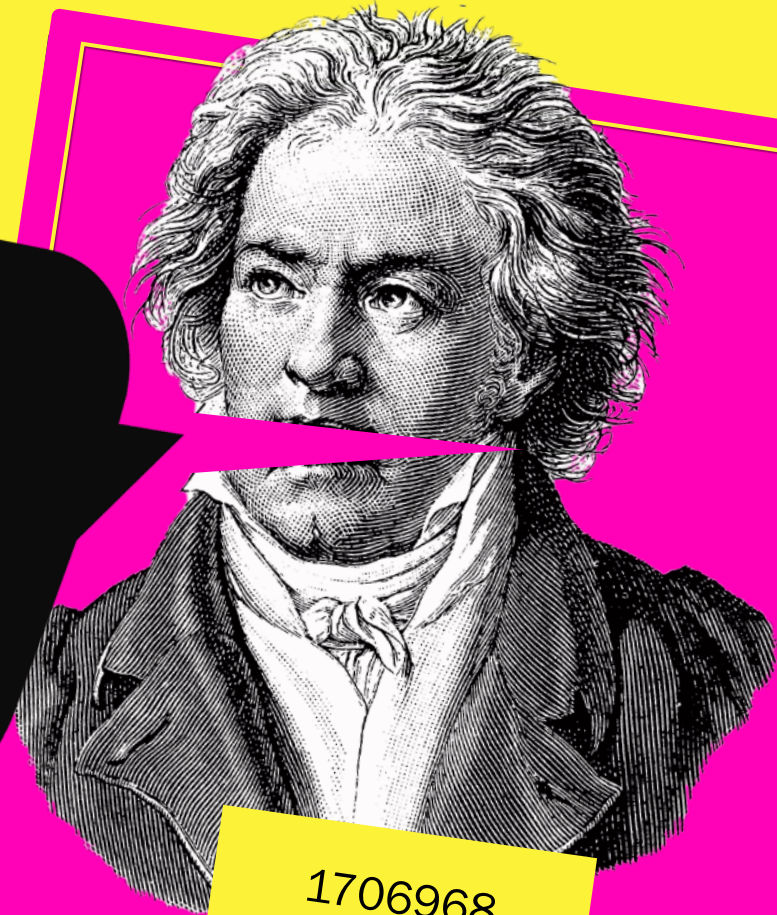


Principles of Learning and Teaching



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NATALIE WILSON

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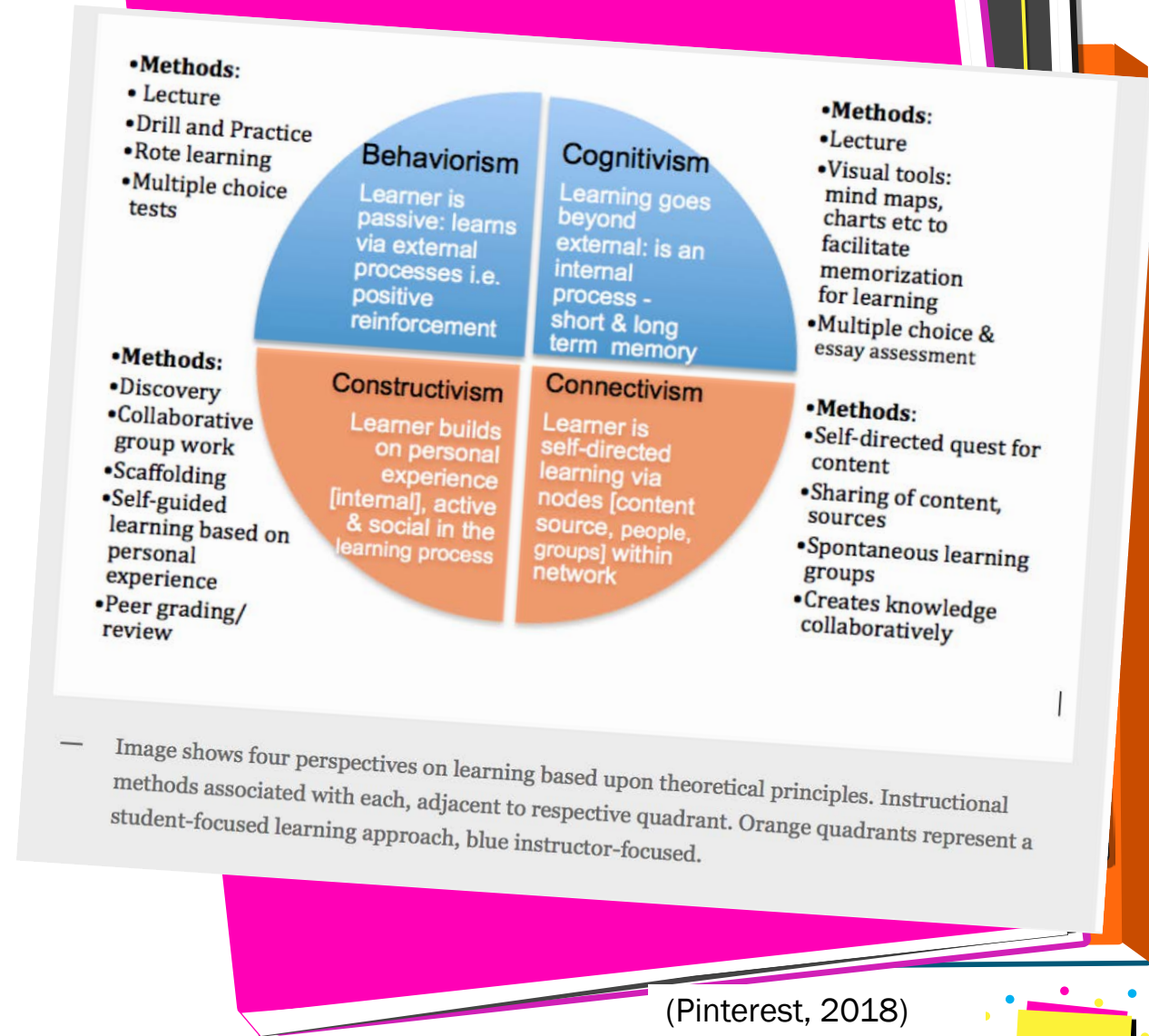
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Different Teaching Methods and behaviour .

What is Learning?

Two central theories we will consider suggest learning is:

- ▶ responding to external stimuli – **behaviourism**;
- ▶ making meaning of experience for oneself – **constructivism**;



(Pinterest, 2018)

Science Watch

How Expectations Affect Pay

What an person expects to be paid can affect how much he or she is paid, according to Brenda Major, assistant professor of psychology at the State University of New York at Buffalo.

Last month, Dr. Major and Virginia Vanderslice, a graduate student, described their findings to the annual meeting of the Eastern Psychological Association.

They asked 195 management students to make a simulated hiring decision. Each subject was given a résumé and other application papers, but the experimenters varied the applicants' sex and salary expectations.

Given equal qualifications, the higher the salary expected, the higher the pay offered. Women who had either very low or very high pay expectations were penalized, compared to men with similar expectations. But women whose expectations were in the middle were paid more than men with the same expectations.

'Self-Awareness' in Animals

At about 18 months, babies learn that they can locate parts of their own bodies by looking in a mirror, and since the 1950's cognitive psychologists have used this behavior as evidence that the babies are developing a sense of self-awareness previously lacking.

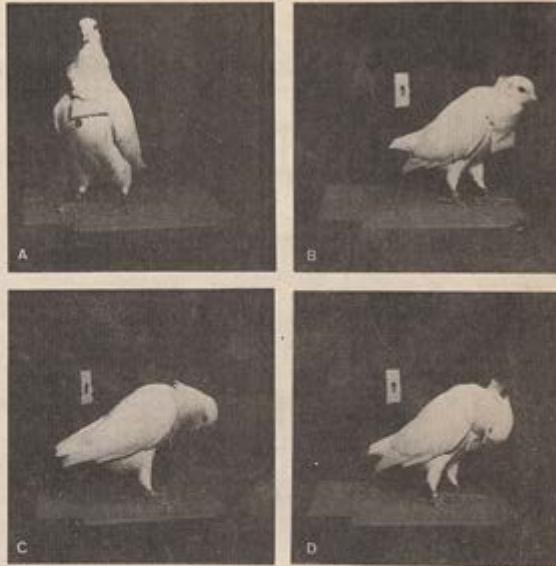
In the 1970's, accounts were published of chimpanzees — but not such lower animals as monkeys — doing likewise, as they showed by locating on their own heads colored dyes they could see only in a mirror.

Under the stimulus of such reports, the Harvard behaviorist B. F. Skinner and two graduate students have produced an experiment in which pigeons behave much as the chimpanzees did — or the babies.

Robert Epstein, Robert P. Lanza and Professor Skinner rewarded pigeons first for pecking. In the absence of a mirror, at blue dots stuck on their bodies, and then, with a mirror present and with the dots removed from their bodies, for pecking at similar blue dots seen in their cages. Then, by reducing the exposure time of the dots, the birds were taught to peck at the spot in their cages where a dot had just been. Finally, they were taught to locate objects in real space by seeing them in mirror space — as they demonstrated by pecking spots in their cages that had been visible only in the mirror.

The birds were then fitted with blue dots on their own breasts, and with bibs that covered the spots if they lowered their heads. The birds therefore could never see the dots — except in the mirror.

The researchers report that the pigeons produced many "dot-directed re-



In experiment demonstrating pigeons' apparent self-awareness, pigeon uses a mirror to locate spot on its body that it cannot see directly. (A) Pigeon stands upright; spot is visible just below bib. (B) Faces mirror. (C and D) Pigeon bobs and pecks in direction of spot.

Robert Epstein

sponses" toward the dot they could not see, with no reward for such responses. "We have shown," they write in the May 8 issue of the journal *Science*, "how at least one instance of behavior attributed to self-awareness can be accounted for in terms of an environmental history. We submit that other instances, including those exhibited by humans, can be dealt with in a similar way."

The Origin of handedness

Roughly two-thirds of humans are right-handed, according to a current estimate, while the rest are either left-handed or ambidextrous to varying degrees. But why humans should have this preference for one side over the other is a mystery. One clue, known for years, is that most newborn infants tend to lie with their heads turned to their right sides. Is this the origin of the right-hand prejudice? George F. Michel of the department of psychiatry, Children's Hospital Medical Cen-

ter, Boston, took the question to its source; the babies themselves. His method, reported in the current issue of *Science*, was to study normal newborns to see which way their heads came to rest naturally and to correlate this with tests of handedness at 16 and 22 weeks of age.

Study of 150 infants supported the idea that those who turned their heads to the right were likely to become right-handed. Perhaps, the author suggested, the baby whose head was turned to that side would see his or her right hand more easily and would tend to develop good hand-eye coordination earlier on that side.

Why should most babies prefer to turn their heads to the right? So far there is no answer to that question either. The scientist said his findings support the idea that genetics may be responsible. In that case right-or-left-handedness might be a secondary trait dictated by an inborn genetic preference for lying with the head turned to the right.

Behaviourism

"The theory that human and animal behaviour can be explained in terms of conditioning, without appeal to thoughts or feelings, and that psychological disorders are best treated by altering behaviour patterns" Oxford Dictionary, (2018)

- ▶ Behaviourists believe that environmental factors influence behaviour. Theorists believe we learn through our surroundings. What happens in our surroundings effects our thinking and emotions effecting our behaviour.
- ▶ Behaviourism refers to a psychological approach which emphasizes scientific and objective methods of investigation. The approach is only concerned with observable stimulus-response behaviours, and states all behaviours are learned through interaction with the environment. (Simplypsychology.org, 2018)

New article by the New York Times on Skinners Behaviourism experiment using pigeons.

Burrhus Skinner (1904 – 1990).

- ▶ Burrhus Skinner was an American psychologist.
- ▶ Skinner believe that when we are born we are an “empty vessel” or a “blank slate”.
- ▶ He believe that we learn our behaviour from the environment around us.
- ▶ He suggested that behaviour can be shaped by controlling our surroundings.



Operate conditioning

Operant conditioning is a method of learning that occurs through rewards and punishments for behaviour. Through operant conditioning, an individual makes an association between a particular behaviour and a consequence (Skinner, 1966)

Is a behaviourist theory based on the idea that behaviours that are reinforced will continue and behaviours that are punished will cease.

Operant conditioning can be described as a process that attempts to modify behaviour through the use of positive and negative reinforcement. Through operant conditioning, an individual makes an association between a particular behaviour and a consequence. (Learning Theories, 2018)



Research Paper

Management

Factors Affecting Academic Performance of Students

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ABSTRACT Purpose- The study aims to investigate the factors influencing students' academic performance. Design/ Methodology/ Approach- This study uses ex post facto research design. An instrument measuring students' academic performance has been used to collect data from the management students. Findings- The study revealed that there is a positive and statistically significant impact of learning facilities, communication skills and proper guidance from parents on student academic performance. Originality Value- The study attempts to identify factors other than traditionally studied.

KEYWORDS Student's perspective, student performance, learning facilities and communication skills.w

INTRODUCTION

For any educational institute students are most important asset. Universities and colleges have no value without students. Economic and social development of a country is directly associated with academic performance of students. The students' academic performance plays a vital role in creating the finest quality alumnae who will become leader and manpower of a particular country, consequently responsible for the country's social and economic development (Ali et. al, 2009). The academic performance of the students' has gained significant attention in past researches. Performance of students is affected by psychological, economic, social, personal and environmental factors. Though these factors strongly influence the performance of the students, but these factors differ from country to country and person to person. Most of the previous studies on academic performance of students focused on such issues like teacher education, class environment, gender difference, teaching style, family educational background and socioeconomic factor. The majority of the researchers in the world applied the GPA to assess the performance of the students (Stephan & Schaban, 2002). They applied GPA (grade point average) to evaluate performance of the students in a particular semester.

Darling (2005) and Galihar (2006) utilized GPA to evaluate performance of the students. Other researchers assessed the performance of the students through the previous year result or the outcome of a particular subject (Tahir, S., & Naqvi, S. R., 2006; Tho, 1994). Some different researchers used test outcomes or earlier they are considering performance for the particular subject (Hake, 1988). Past studies concentrates, on various factors such class plans, class size, reading material, environment of the class, the innovation utilized as a part of the class and exams frameworks, extra-curricular exercises, family and work exercises.

LITERATURE REVIEW

Several studies have been conducted to find out students' academic performance (Applegate and Daly, 2006; Hedjazi and Omid, 2008; Ramadan and Quraan, 1994; Al-Rofo, 2010; Tori, 1988; Hijaz and Naqvi, 2006; Naser and Peel, 1998; Abdullah, 2005). All these studies engaged the Grade Point Average (GPA) as a common indicator of the performance

of the students. Kochhar (2000) says proper guidance is necessary to help the students with problems like lack of correlation between talent and achievement, faulty study practice, imperfect methods of learning. Researches have demonstrated that the performance of the students depended upon several factors like, learning facilities, age and gender differences. The most significant factor with the positive outcome on the performance of the students is competence of students in English. Students having good communication skills it expands the students' performance (Abdullah, 2011). William & Burden (1997) found that language classrooms inculcate confidence among students to use the new language to communicate, to discuss, to try new ways of conveying meanings and to be trained from failures and successes. Robert and Sampson (2011) investigated that the students who effectively participate in the learning procedure are seen to have a higher CGPA (cumulative grade point average). Noble (2006), found that academic activities of students, perceptions of their adapting strategies and background qualities (for example family pay, direction from parents, number of negative circumstances in the house and parents' level of education) were indirectly connected to their compound scores, during academic achievement in secondary school. Direction is a component through which a student knows how to progress his study approach and study schedule and is directly corresponding to academic accomplishment. The students who are appropriately guided by their guardians have done well in the exams. The direction from the educator also influences performance of the students. The guidance from the guardians and the educators indirectly influence the students' performance (Hussain, 2006). Raychauduri et al. (2010) examined that various studies have been concluded to recognize those variables which are influencing academic performance of the students. The academic performance of the students also rely on various socioeconomic variables like students' participation in the class, family pay, and teacher-student ratio, presence of qualified teachers in school and gender of the student. Several studies have also been done on the impact of peer influence on student performance (Gonzales et. al., 1996; Goethals, 2001; Hanushek et. al, 2002) investigated that peer influence has more influential effects than family. Peer help was positively associated with the students' average grade point. Giuliodori, Lujan and DiCarlo (2006) found that through peer interaction, students might increase their skills on solving qualitative prob-

How Behaviourism works In a school setting.

There are four different possible consequences to behaviour in operant conditioning.

- Reward (causing it to be repeated) or
- Punished (making it less likely to be repeated).
- Give something to the Learner (called "positive" because we are adding a stimulus
- Take something away (called "negative" because we are subtracting a stimulus). Thus, our four consequences are positive and negative reinforcement and positive and negative punishment. (The Learning Scientists, 2018)

So lets take for example a if a child is not compliant to do their work should we

- Offer that child a reward if they do it?
- Take away something that the child favours in School?

Both ways can have positive learning outcomes. Children will learn by this operant conditioning and enhance learning and increase good study strategies. Learning how behaviourist principles work helps us to provide ideas for how we can guide those behaviours to lead to better learning.



RESEARCH REPORT

What is the relationship between social constructivism and Piagetian constructivism? An analysis of the characteristics of the ideas within both theories

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For twenty years, social constructivism has been a paradigm in science teaching and not an easy bed-fellow for piagetian constructivism, even though both have had the same thing in mind... a study of the learner. For this reason we attempt to find connections and bridges between them so that both may be enriched, to the benefit of science teaching.

Introduction

At the end of the seventies there was a move in science teaching away from an interest in general aspects linked with pupils' cognitive level towards specific aspects of their knowledge related to the content to be taught. At the same time, divisions were opening up which would lead to the different constructivist currents which we know today (Good 1993, Matthews 1994, Geelan 1997).

Piagetian experiments with children had a great effect on science teaching in the 1960s and 70s (Bliss 1995). Later, a new language was adopted by educators and researchers to describe science teaching problems, giving rise to a new 'theory', in a postmodernist sense (Solomon 1994), which came to be known as the 'alternative conceptions movement' (Gilbert and Swift 1985) and later 'social constructivism' (Gilbert 1995). One characteristic of social constructivism (SC) was the constant criticism and, indeed, rejection of Piagetian constructivism (PC) (see Posner *et al.* 1982, Novak 1982, Gilbert and Swift 1985; Giordan and De Vecchi 1987, Millar 1989, Séré 1990, among others), which seemed to suggest that the two points of view were irreconcilable. The critics of Piaget's theory thought it was outdated, a view which seems unfair since it did not take into account the post-mortem continuation of his work (see Vuyk 1985, Aliberas *et al.* 1989, López

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Constructivism.

Constructivism is a learning theory found in psychology which explains how people might acquire knowledge and learn. It therefore has direct application to education. The theory suggests that humans construct knowledge and meaning from their experiences. (Sydney.edu.au, 2018)

- ▶ As we take in new knowledge we understand it, interpret it and apply it to what we already know and construct it to build more knowledge.
- ▶ The constructivism theory is learner focused not subject focused.
- ▶ The Teacher is the facilitator and produces the environment and information and encourages the learner and helps guide but does not get in the way of the learner exploring and processing that new information.

Report analysing the relationship between constructivism and social constructivism the ideas and theories.



Jean Piaget (1896-1980).

- ▶ Jean Piaget was an Swiss psychologist.
- ▶ Piaget believe that Education was of great importance to child behaviour.
- ▶ Piaget suggested that children go through four key stages of cognitive development.
- ▶ Piaget believed children are born with basic mental structure (genetically inherited and evolved) on which all subsequent learning and knowledge are based.(Simplypsychology.org, 2018)



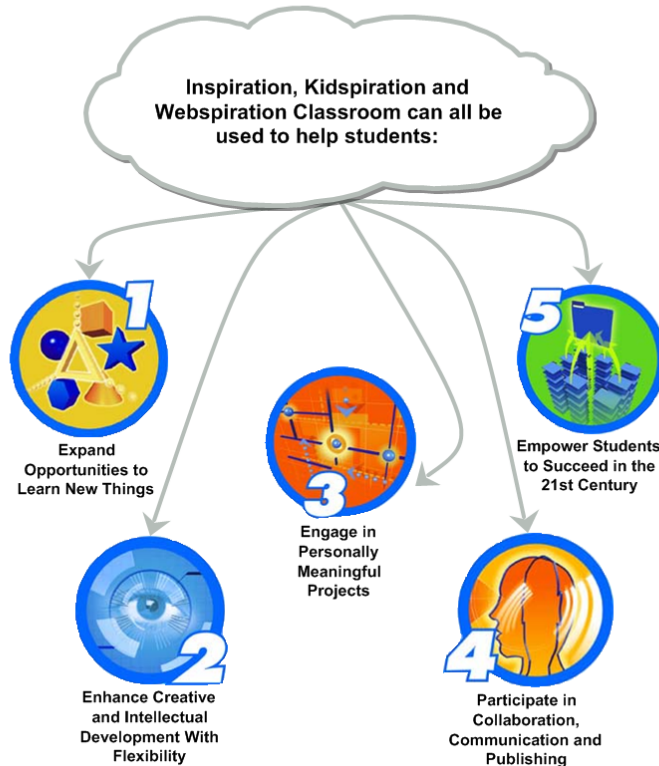
(Thefamouspeople.com, 2018)

Cognitive theory

Cognitive Learning Theory implies that the different processes concerning learning can be explained by analysing the mental processes first. It posits that with effective cognitive processes, learning is easier and new information can be stored in the memory for a long time. On the other hand, ineffective cognitive processes result to learning difficulties that can be seen anytime during the lifetime of an individual. (Explorable.com, 2018)

How constructivism works In a school setting.

Constructivist Theory or Constructivism



In a Constructivism led classroom the focus is on the learner not the Teacher. It is no longer the teacher filling the learner with Knowledge, now the learner is actively involved in their own process of learning. In these classroom the teacher and learner work together with the knowledge and explore it together. The main activity in a constructivist classroom is solving problems:

- Using methods to ask questions
- Investigating a topic,
- Using a variety of resources to find solutions and answers. The learner uses this new founded information and the information they previously have together to make new conclusions.

Professor Graham Donaldson .

Professor Graham Donaldson Excelled in his 40 year career in Education. He became involved not only in schools but Universities and local and central Government in Scotland before working at the National level as a curriculum developer and evaluator. In 1983 he was appointed as one of Her Majesty's Inspectors of Education (HMI) and rose to become head of the Scottish Inspectorate (HMIE) from 2002 – 2010. He went on to start his own company Donaldson Education Services Ltd, which provides the Welsh Assembly Government with educational consultancy on education with a particular focus on curriculum development, assessment, teacher education and educational evaluation and inspection. (Graham Donaldson, 2018) Professor Donaldson's designed the foundations for a twenty-first century curriculum shaped by the very latest national and international thinking. Donaldson uses both Skinners and Piaget Theories by knowing your learners and incorporating re-inforcements, and working with continuous development.

“Our plan for the first ever ‘made-in-Wales’ curriculum sets out our principles and priorities and reflects our confidence and pride in Wales as a bilingual nation. Our new curriculum will embody better learning and higher standards for all. I am committed to the profession playing a central part in the design and development of our new curriculum. I am confident they are both willing and able to take on this challenge”. (Dera.ioe.ac.uk, 2018)



Graham Donaldson.
(2018).

The Donaldson Approach.

Step One - Identify your pupils' greatest need

The first step towards meaningful and effective engagement with research is to identify a need, a question or a problem to answer. This problem should be one that is a whole school development priority. A problem that if solved will improve the outcomes of a large proportion of the school's pupils. A problem that as many teaching staff and support staff will engage with as possible.

Now we know where to start. Now we have narrowed our search down to something that will have a noteworthy impact on pupils' learning and skills

Step Two - Identify a reliable source of research information

Keeping up to date with the education research is important, even more so when the process of challenging research findings is ongoing and nothing can be taken for granted.. It is important that research evidence is seen not as an end-point but a continual process of re-evaluation and renewal.



(Smore, 2018)

Step Three - Understand how research methods affect validity of research outcomes

If teachers are to use research effectively in the classroom they need to understand different research methods, sample sizes, control groups etc. One way to address this is to designate a member of staff to curate and represent research for staff, taking into account the research methods used. Having a school research lead is also a very efficient way to ensure workload associated with reading and using research is kept to a minimum.

Step Four - Know how to turn research into pupil friendly learning strategies

Driving continual improvement means both using what works, but also using what works for the pupils in your school.

Every school should have an innovation structure and system. They should have an innovation team who are ready and willing to try out and evaluate the latest research or learning strategy suggested by cognitive science. Every school should know how each innovation, if successful in a small 'in school' trial, can be scaled up and rolled out to everyone it will have a positive impact upon.

One of the key actions schools should be taking in preparation for the publication of the new curriculum for Wales, is supporting their staff to become ready and able to use research to make a difference to their pupils.

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